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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/828,550	04/21/2004	Daniel R. Neal	WFS.006CIP	5453

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EXAMINER	
STULTZ, JESSICA T	

ART UNIT	PAPER NUMBER
2873	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/828,550	NEAL ET AL.	
	Examiner	Art Unit	
	Jessica T. Stultz	2873	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *31 December 2007 and 01 April 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *18-37,42-45 and 47* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *18-37,42-45 and 47* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *21 April 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *123107*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Allowable Subject Matter

The indicated allowability of claims 29-37, 42-45, and 47 is withdrawn in view of the newly discovered reference(s) to Williams et al '719 and Williams et al '719 in view of Mihashi et al '233. Rejections based on the newly cited reference(s) follow.

Examiner's Comments

For applicant's information, the amendments to the specification, filed December 31, 2007, overcome the previous objection to the specification. Additionally, the terminal disclaimer filed December 31, 2007 was not accepted by the office; however, the new terminal disclaimer filed April 1, 2008 has been accepted and thereby overcomes the previous obviousness-type double patenting rejection.

Terminal Disclaimer

The terminal disclaimer filed on April 1, 2008 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of US 6,550,917 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 18-21, 23-26, 29-32, 34-35, 42, 44, and 47 are rejected under 35 U.S.C. 102(b) as being anticipated by Williams et al US 5,777,719, herein referred to as Williams et al '719.

Regarding claim 18, Williams et al '719 discloses a system for measuring an optical characteristic of an optically transmissive object (Column 4, lines 12-20, wherein the apparatus of Figure 1 measures aberrations of the eye "100" of a patient, Figure 1), comprising: a projecting optical system which projects light through an optically transmissive object (Column 4, lines 21-47, wherein the projection optical system comprises laser "102" and lenses "116", "112", "120" and "122", Figure 1); a correction system adapted to at least partially compensate a light beam that has been projected through the object for at least one optical property of the object (Column 4, lines 13-47 and Column 5, lines 12-26, wherein the correction system comprises deformable mirror "118" and lenses "120"/"122", Figure 1); an imaging system adapted to collect the light that has been projected through the object (Column 4, lines 13-47, wherein the imaging system comprises lenses "116", "112", "120" and "122", lenslet array "148", Figure 1); and a wavefront sensor adapted to receive the light collected by the imaging system and to sense a wavefront of the received light (Column 4, lines 13-47, wherein the wavefront sensor is CCD camera "146" of wavefront sensor system "154", Figure 1).

Regarding claim 19, Williams et al '719 further discloses that the object is a lens (Eye "100" is a lens) and the optical property that the correction system compensates for is a focal power of the lens (Column 4, lines 14-20, wherein the deformable mirror "118" and lens "122", compensate for aberrations of the eye and correct for focal power deficiencies such as myopia and hyperopia, Figure 1).

Regarding claim 20, Williams et al '719 further discloses means for adjusting the compensation applied to the light beam by the correction system (Column 5, lines 12-26,

wherein the means for adjusting comprises the actuators "37" which adjust the deformable mirror "118", Figure 1)..

Regarding claim 21, Williams et al '719 further discloses that the sensor is a Shack-Hartmann wavefront sensor (Column 4, lines 36-47).

Regarding claims 23-24, Williams et al '719 further discloses that the correction system includes at least one variable focal length lens (Column 4, lines 21-47, wherein the variable focus lens "122" is movable to correct for myopia or hyperopia, Figure 1).and a processor controlling the variable focal length lens (Column 4, line 64-Column 5, line 11, via computer "150" which processes wavefront information from wavefront sensor "154", Figure 1).

Regarding claim 25, Williams et al '719 further discloses that the correction system comprises a telescope having two lenses, at least one of said lenses being movable (Column 4, lines 21-47, wherein the telescope comprises lenses "120" and "122" , wherein "122" is movable to correct for myopia or hyperopia, Figure 1)..

Regarding claim 26, Williams et al '719 further discloses a processor adapted to move said movable lens to a plurality of positions (Column 4, line 64-Column 5, line 11) and to stitch together the sensed wavefronts of the light received by the wavefront sensor at each of the positions (Column 5, line 27-Column 6, line 27, wherein the map of the eye is determined by computer "150", Figures 1-3).

Regarding claim 29, Williams et al '719 discloses a method of measuring an optical quality of an optically transmissive object (Column 4, lines 12-20, wherein the apparatus of Figure 1 measures aberrations of the eye "100" of a patient, Figure 1), comprising: (a) projecting a light beam through an optically transmissive object (Column 4, lines 21-47, wherein the

projection optical system comprises laser "102" and lenses "120" and "122", Figure 1); (b) at least partially compensating the light beam that has been projected through the object for at least one optical property of the object (Column 4, lines 13-47 and Column 5, lines 12-26, wherein the compensation system comprises deformable mirror "118" and lenses "120"/"122", Figure 1); (c) collecting the light beam that has been projected through the object and providing the collected light to a wavefront sensor (Column 4, lines 13-47, wherein the imaging system comprises lenses "116", "112", "120" and "122", lenslet array "148", Figure 1); and (d) sensing at the wavefront sensor a wavefront of the collected light (Column 4, lines 13-47, wherein the wavefront sensor is CCD camera "146" of wavefront sensor system "154", Figure 1).

Regarding claim 30, Williams et al '719 further discloses that the object is a lens (Eye "100" is a lens) and wherein at least partially compensating the light beam that has been projected through the object for at least one optical property of the object includes compensating for a focal power of the lens (Column 4, lines 14-20, wherein the deformable mirror "118" and lens "122", compensate for aberrations of the eye and correct for focal power deficiencies such as myopia and hyperopia, Figure 1).

Regarding claim 31, Williams et al '719 further discloses that the method measures the focal power of the lens (Column 4, lines 14-20, wherein the deformable mirror "118" and lens "122", compensate for aberrations of the eye and correct for focal power deficiencies such as myopia and hyperopia, Figure 1).

Regarding claim 32, Williams et al '719 further discloses (e) changing a compensation applied to the light beam (Column 5, lines 12-26, wherein the means for adjusting comprises the actuators "37" which adjust the deformable mirror "118", Figure 1); (f) repeating steps (b)

through (e) to obtain N sensed wavefronts light (Column 4, line 64-Column 5, line 11) ; and (f) stitching together the N sensed wavefronts to map the object (Column 5, line 27-Column 6, line 27, wherein the map of the eye is determined by computer "150", Figures 1-3).

Regarding claim 34, Williams et al '719 further discloses that compensating the light beam comprises passing the light beam through a telescope having two lenses, at least one of said lenses being movable (Column 4, lines 21-47, wherein the telescope comprises lenses "120" and "122" , wherein "122" is movable to correct for myopia or hyperopia, Figure 1).

Regarding claims 35, Williams et al '719 further discloses (e) moving said movable lens to a plurality of positions (Column 4, line 64-Column 5, line 11, via computer "150" which processes wavefront information from wavefront sensor "154", Figure 1); and (f) stitching together the sensed wavefronts of the light received by the wavefront sensor at each of the positions (Column 5, line 27-Column 6, line 27, wherein the map of the eye is determined by computer "150", Figures 1-3).

Regarding claim 42, Williams et al '719 discloses a method of measuring an optical quality of an optically transmissive object (Column 4, lines 12-20, wherein the apparatus of Figure 1 measures aberrations of the eye "100" of a patient, Figure 1), comprising: (a) projecting a light beam through at least a portion of an object (Column 4, lines 21-47, wherein the projection optical system comprises laser "102" and lenses "120" and "122", Figure 1); (b) collecting light passed through the portion of the object (Column 4, lines 13-47, wherein the imaging system comprises lenses "116", "112", "120" and "122", lenslet array "148", Figure 1); (c) sensing at a wavefront sensor a wavefront of the collected light passed through the portion of the object (Column 4, lines 13-47, wherein the wavefront sensor is CCD camera "146" of

wavefront sensor system "154", Figure 1); (d) repeating steps (a) through (c) for a plurality of different portions of the object that together span a target area of the object (Column 4, line 64-Column 5, line 11); and (e) stitching together the sensed wavefronts to produce a complete measurement of the target area of the object (Column 5, line 27-Column 6, line 27, wherein the map of the eye is determined by computer "150", Figures 1-3).

Regarding claim 44, Williams et al '719 further discloses that collecting light passed through the portion of the object comprises passing through a telescope having two lenses the light passed through the portion of the object, at least one of said lenses being movable (Column 4, lines 21-47, wherein the telescope comprises lenses "120" and "122" , wherein "122" is movable to correct for myopia or hyperopia, Figure 1), and wherein repeating steps (a) through (c) for a plurality of different portions of the surface of the object comprises moving the movable lens to a plurality of different positions (Column 4, line 64-Column 5, line 11, via computer "150" which processes wavefront information from wavefront sensor "154", Figure 1).

Regarding claim 47, Williams et al '719 discloses a method of measuring an optical quality of an optically transmissive object (Column 4, lines 12-20, wherein the apparatus of Figure 1 measures aberrations of the eye "100" of a patient, Figure 1), comprising: (a) locating a light source a first distance from an optically transmissive object and (b) projection a light beam from the light source through the object (Column 4, lines 21-47, wherein the projection optical system comprises laser "102" and lenses "120" and "122", Figure 1); (c) collecting light projected through the object (Column 4, lines 13-47, wherein the imaging system comprises lenses "116", "112", "120" and "122", lenslet array "148", Figure 1); (d) sensing a wavefront comprising a difference between a wavefront of the collected light and a reference wavefront

(Column 4, lines 13-47, wherein the wavefront sensor is CCD camera "146" of wavefront sensor system "154", Figure 1); (e) changing the distance between the light source and the object (Column 4, line 64-Column 5, line 11), (f) repeating steps (b) through (e) to produce N sensed wavefronts (Column 4, line 64-Column 5, line 11); and (g) stitching together the N sensed wavefronts to produce a complete measurement of the target area of the surface of the object (Column 5, line 27-Column 6, line 27, wherein the map of the eye is determined by computer "150", Figures 1-3).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 22, 27-28, 33, 36-37, and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Williams et al '719 as applied to independent claims 18, 29, 42, and 47 above, in view of Mihashi et al US 6, 042,233, herein referred to as Mihashi et al '233.

Regarding claims 22, 27, 33, 36, and 43, Williams et al '719 disclose a system and method for measuring an optical characteristic of an optically transmissive object as shown above, but does not specifically disclose that the system comprises a dynamic-range-limiting aperture disposed in an optical path between the two lenses and being adapted to insure that the wavefront sensor only sees light within a dynamic range of the system. In the same field of endeavor of optical systems for measuring optical characteristics of an optically transmissive object (Abstract), Mihashi et al '233 teaches of using a dynamic-range-limiting aperture disposed

in an optical path between two lenses of the system and being adapted to insure that the wavefront sensor only sees light within a dynamic range of the system (Column 3, line 66-Column 4, line 19, wherein the aperture is variable diaphragm "202", Figures 1a-b). Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the teaching of Mihashi et al '233 with the system of Williams et al '719 for the purpose of reducing the influence of light reflected by the cornea on measurement (Column 4l, lines 18-19).

Regarding claim 28, Williams et al '719 and Mihashi et al '233 disclose and teach of a system as shown above, and Williams et al '719 further discloses a processor adapted to move said movable lens to a plurality of positions (Column 4, line 64-Column 5, line 11) and to stitch together the sensed wavefronts of the light received by the wavefront sensor at each of the positions (Column 5, line 27-Column 6, line 27, wherein the map of the eye is determined by computer "150", Figures 1-3).

Regarding claims 37, Williams et al '719 and Mihashi et al '233 disclose and teach of a method as shown above, and Williams et al '719 further discloses (e) moving said movable lens to a plurality of positions (Column 4, line 64-Column 5, line 11); and (f) stitching together the sensed wavefronts of the light received by the wavefront sensor at each of the positions (Column 5, line 27-Column 6, line 27, wherein the map of the eye is determined by computer "150", Figures 1-3).

Response to Arguments

Applicant's arguments with respect to claims 18-28 have been considered but are moot in view of the new ground(s) of rejection in view of Williams et al '719 and Williams et al '719 in view of Mihashi et al '233 as shown above.

Conclusion

Applicant's submission of an information disclosure statement under 37 CFR 1.97(c) with the fee set forth in 37 CFR 1.17(p) on December 31, 2007 prompted the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 609.04(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jessica T. Stultz whose telephone number is (571) 272-2339. The examiner can normally be reached on M-F 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Mack can be reached on 571-272-2333. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jessica T Stultz
Primary Examiner
Art Unit 2873

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